AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An interventional procedure simulation system, comprising a control unit and an interface unit, said control unit communicating with said interface unit to simulate handling of a number of simulated real nested instruments simultaneously interfaced by said interface unit and, said instruments being arranged to move and rotated independently of each other and said movements and rotations being propagated to the other instruments, said control unit further comprising an instruction set comprising:

* a first instruction set for handling and processing an input from said a user,

* based on said input, generating a second instruction set for controlling said interface,

* a first data set comprising characteristics for said instruments,

* a second data set comprising data on a body part to be simulated, and

* a third instruction set for generating control signals relating to an interaction between said simulated instruments and a surrounding geometry relating to a part of said simulated body part. part, and

a fourth instruction set for controlling movements of a number of serially arranged and interconnected carriages corresponding to movements of said instruments in said interface unit.

2. (Previously Presented) The system of claim 1, wherein said interventional procedure is at least one of a diagnostic, a cardiovascular or endovascular simulation system.

3. (Previously Presented) The system of claim 1, wherein a user's movements of said instruments, a surrounding simulated anatomy and other present instruments, affect a shape of an instrument simulated and displayed.

4. (Previously Presented) The system of claim 3, wherein for each instrument collisions with simulated surrounding calculations are executed by said control unit, which affects the shape and position of said instrument in said simulated body part.

5. (Currently Amended) The system of claim 1, wherein an instrument is a distal part of a ~~tool, or unique features at the distal~~tool or an end of a tool.

6. (Currently Amended) The system of claim 1, wherein different instrument types can be used comprising at least one of balloons, stems, electrodes, wires, catheters, and distal protection~~,~~ ~~etc~~.

7. (Previously Presented) The system of claim 6, wherein each instrument type has different properties associated to it and provided as an instruction set, which describes substantially all properties of said instrument.

8. (Currently Amended) The system of claim 6, wherein the properties of said instruments further describe interaction with at least one of surrounding geometry, visual properties, stiffness, and shape.~~etc~~.

9. (Previously Presented) The system of claim 8, wherein simulated properties of said instrument are altered in real-time.

10. (Previously Presented) The system of claim 1, wherein the system comprises a model used for rendering objects depending on properties to be displayed and a collision model for computing collisions between the simulated instrument and body part.

11. (Previously Presented) The system of claim 1, wherein a model of said body or part of said body part is a three-dimensional data obtained through a body scanning.

12. (Previously Presented) The system of claim 3, wherein said instrument movements and rotations interact simulated with other instruments.

13. (Currently Amended) A method for simulating an interventional procedure, comprising the steps of:

4

* providing a control unit and an interface unit, said control unit communicating with said interface unit to simulate handling of a number of nested real instruments simultaneously interfaced by said interface unit and that each nested tool can be moved and rotated independently of the other and said movements and rotations are propagated to other instruments,

* providing a first instruction set for handling and processing input from said a user,

* generating a second instruction set based on said input, for controlling said interface,

* retrieving information on said instrument comprising a first data set comprising characteristics for said instruments,

* providing a second data set comprising data on a body part to be simulated, and

* generating control signals relating to interaction between said instrument and a surrounding geometry by a third instruction set, and

* controlling movements of a number of serially arranged and interconnected carriages corresponding to movements of said instruments in said interface unit.

14. (Previously Presented) The method of claim 13, changing instrument simulated and displayed based on a user's movements of said instruments, a surrounding simulated anatomy and other present instruments, effect a shape of an instrument simulated and displayed.

15. (Currently Amended) The method of claim 13, wherein an instrument is a distal part of a tool, or unique features at the distal tool or- an end of a tool.

16. (Currently Amended) The method of claim 13, wherein different instrument types can be used comprising at least one of balloons, stents, electrodes, wires, catheters, and distal protection, etc.

17. (Previously Presented) The method of claim 16, wherein each instrument type   has different properties associated to it and provided as an instruction set, which describes substantially all properties of said instrument.

18. (Currently Amended) The method of claim 16, wherein the properties of said instruments further describe interaction with at least one of surrounding geometry, visual properties, stiffness, and shape etc.

19. (Previously Presented) The method of claim 16, wherein simulated properties of said instrument are altered in real-time.

20. (Currently Amended) A system for an interventional procedure simulation, said system comprising a control unit and an interface unit, the system further comprising:

   *   means for communication between said control unit an said interface unit

   *   means in said interface unit to simultaneously simulate handling of a number of nested instruments interfaced by said interface unit, each of said instruments being,

   *   independently movable and rotatable, simultaneously interfaced by said inter face unit,

   *   interface member for receiving input from said a user,

   *   means for handling and processing said input,

   *   means for controlling said interface,

   *   a first database for storing characteristics for said instruments,

   *   second database for storing characteristics about a body part to be simulated, and

   *   means for generating control signals relating to an interaction between said simulated instruments and a surrounding geometry relating to a part of said simulated body part, and

   *   means for controlling movements of a number of serially arranged and interconnected carriages corresponding to movements of said instruments in said interface device.

21. (Previously Presented) The system of claim 20 wherein said characteristics about a body part to be simulated are obtained through a scanning process.

22. (Currently Amended) A computer program for interventional procedure simulation in a system comprising a control unit and an interface unit, said program comprising:

* ~~Communication~~ communication instruction set for communication between said control unit a

and said interface unit,

* a first instruction set for simulating handling of a number of simulated nested instruments, independently movable and rotatable, simultaneously interfaced by said interface unit, said control unit further comprising an instruction set, comprising:

* a second instruction set for handling and processing input from said user,

* a third instruction set for controlling said interface,

* a first data set comprising characteristics for said instruments,

* a second data set comprising data on a body part to be simulated,

* a fourth instruction set for generating control signals relating to an interaction between said simulated nested instruments and a surrounding geometry relating to a part of said simulated body part, ~~and~~

* a fifth instruction set for controlling movements of a number of serially arranged and interconnected carriages corresponding to movements of said instruments in said interface device, and

* a sixth instruction set for outputting simulation on a ~~visualisation~~ visualization member.

23. (Currently Amended) A program storage device readable by a machine and encoding a program of instructions for executing the computer program for interventional procedure simulation according to ~~claim 23~~ claim 22.

24. (Currently Amended) A computer readable medium having computer readable program code embodied therein to enable an interventional procedure simulation in a system comprising a control unit and an interface unit, said program comprising:

* a communication instruction set for communication between said control unit and said interface unit,

* a first instruction set for simulating handling of a number of simulated nested instruments, independently movable and rotatable, simultaneously interfaced by said interface unit, said control unit further comprising an instruction set, comprising:

* a second instruction set for handling and processing input from said a user,

* a third instruction set for controlling said interface,

* a first data set comprising characteristics for said instruments,

* a second data set comprising data on a body part to be simulated,

* a fourth instruction set for generating control signals relating to an interaction between said simulated nested instruments and a surrounding geometry relating to a part of said simulated body part, and

* a fifth instruction set for controlling movements of a number of serially arranged and interconnected carriages corresponding to movements of said instruments in said interface device, and

* a fifth sixth instruction set for outputting simulation on a visualisation visualization member.

25. (Currently Amended) A computer program product embodied on a computer readable medium propagated signal for comprising a digitalized program code embodied therein to that when executed on a computer enable an interventional procedure simulation in a system comprising a control unit and an Interface unit, said, the computer program product program comprising:

* a digitalized communication instruction set for communication between said a control unit and said an interface unit,

* a digitalized first instruction set for simulating handling of a number of

simulated nested instruments, independently movable and rotatable,
simultaneously interlaced by said interface unit, said control unit further
comprising an instruction set, comprising:

* a digitalized second instruction set for handling and processing input from
~~said~~ a user,

* a digitalized third instruction set for controlling said interface,

* a digitalized first access code for accessing a first data set comprising
characteristics for said instruments,

* a digitalized second access code for accessing a second data set comprising
data on a body part to be simulated,

* a digitalized fourth instruction set for generating control signals relating to an
interaction between said simulated nested instruments and a surrounding
geometry relating to a part of said simulated body part, ~~and~~

* a digitalized fifth instruction set for outputting simulation on a ~~visualisation~~
visualization member, and

* a sixth instruction set for controlling movements of a number of serially arranged
and interconnected carriages corresponding to movements of said instruments in said interface
device.

26. (Currently Amended) A system for an interventional procedure simulation, said
system comprising a control unit and an interface unit, the system further comprising:

* means for communication between said control unit an said interface unit for
receiving at least one instrument used in said interventional procedure,

* means for receiving three-dimensional information on a body part to be
simulated, and ~~means~~ means for generating control signals relating to an interaction
between said instruments and a surrounding geometry relating to a part of said
simulated body part, said control signals being configured to control movements of
a number of serially arranged and interconnected carriages corresponding to movements of said
instruments in said interface device.

9

27. (Previously Presented) The system of claim 26, wherein said three-dimensional information is obtained through a scanning process.

28. (Previously Presented) A system for an interventional procedure simulation learning, said system comprising a control unit and an interface unit, the system further comprising:

* means for communication between said control unit an said interface unit for receiving at least one instrument used in said interventional procedure,

* means for receiving three-dimensional information on a body part to be simulated,

* means for generating control signals relating to an interaction between said

instruments and a surrounding geometry relating to a part of said simulated body part, said control signals being configured to control movements of a number of serially arranged and interconnected carriages corresponding to movements of said instruments in said interface device, and

* means for recording said simulation.

29. (Currently Amended) A method of an interventional procedure training, using a system comprising a control unit and an interface unit, the method comprising:

* using an interventional procedure tool to be simulated in said interface device

* simulating an interaction between said nested instruments, independently movable and rotatable, and a surrounding geometry relating to a part of said simulated body part, and using said simulation for training said-a user.

30. (Currently Amended) A method of facilitating an interventional procedure training, leasing a system comprising a control unit and an interface unit, the method comprising:

* using an interventional procedure tool to be simulated in said interface device,

* simulating an interaction between said nested instruments, independently movable and rotatable, and a surrounding geometry relating to a pat of said simulated body part, and

* using said simulation for training said-a user.

10